PERGAMON International Journal of Mechanical Sciences 42 (2000) III–XI

International Journal of MECHANICAL SCIENCES

www.elsevier.com/locate/ijmecsci

Contents of Volume 42

NUMBER 1

T. B. Stoughton	1	A general forming limit criterion for sheet metal forming
P. A. Friedman and J. Pan	29	Effects of plastic anisotropy and yield criteria on prediction of forming limit curves
J.-S. Lu, O.-K. Harrer, W. Schwenzfeier and F. D. Fischer	49	Analysis of the bending of the rolling material in asymmetrical sheet rolling
W. G. Jiang, J. L. Henshall and J. M. Walton	63	A concise finite element model for three-layered straight wire rope strand
C. Y. Tang, W. Shen, L. C. Fung and T. C. Lee	87	Second-order continuity tensor and stiffness degradation of aluminum alloy 2024T3 under large strain at room temperature
S. Carlsson, S. Biwa and P.-L. Larsson	107	On frictional effects at inelastic contact between spherical bodies
H. Kotera, M. Sawada and S. Shima	129	Cosserat continuum theory to simulate microscopic rotation of magnetic powder in applied magnetic field
Calendar	I	

NUMBER 2

T. Liu, S. Kitipornchai and K. M. Liew	147	Sensing characteristics of contact-type transducer for flexural waves
J. Tirosh, L. Rubinski, A. Shirizly and D. P. Harvey, II	163	Damage evolution in creep bulging of thin sheet metal
S. A. Sherif, W. E. Lear, J. M. Steadham, P. L. Hunt and J. B. Holladay	185	Analysis and modeling of a two-phase jet pump of a thermal management system for aerospace applications
H.-K. Kim, D. A. Hills and D. Nowell	199	Partial slip between contacting cylinders under transverse and axial shear

K. Y. Lam and Li Hua	213	Influence of initial pressure on frequency characteristics of a rotating truncated circular conical shell
H. S. Jia	237	Analysis of transverse runout in rotating flexible disks by using Galerkin's method
J. Y. Jung and Y. T. Im	249	Fuzzy algorithm for calculating roll speed variation based on roll separating force in hot rolling
N. R. Chitkara and K. F. Celik	273	A generalised CAD/CAM solution to the three-dimensional off-centric extrusion of shaped sections: analysis
K. F. Celik and N. R. Chitkara	295	Off-centric extrusion of circular rods through streamlined dies, CAD/CAM applications, analysis and some experiments
K. F. Celik and N. R. Chitkara	321	Application of an upper bound method to off-centric extrusion of square sections, analysis and experiments
F. Nishimura, N. Watanabe and K. Tanaka	347	Evolution of martensite start condition in general thermomechanical loads of Fe-based shape memory alloy
F. Tin-Loi and H. Li	367	Numerical simulations of quasibrittle fracture processes using the discrete cohesive crack model
V. Tvergaard	381	Interface failure by cavity growth to coalescence
Letter to the Editor	397	
Letter to the Editor	399	
Calendar	I	

NUMBER 3

T. H. Hyde, W. Sun and A. A. Becker	401	Failure prediction for multi-material creep test specimens using a steady-state creep rupture stress
Z.-Q. Cheng and S. Kitipornchai	425	Prestressed composite laminates featuring interlaminar imperfection
S. K. Sahoo and P. K. Kar	445	Round-to-hexagon drawing through straightly converging dies: an application of the SERR technique
K. P. Rao and W. M. Sing	451	On the prediction of the effect of process parameters upon forming limit strains in sheet metals
C. W. Wu and R. Q. Hsu	473	Theoretical analysis of extrusion of rectangular, hexagonal and octagonal composite clad rods
S.-H. Chang, T.-D. Chung and S.-S. Lu	487	Tooth contact analysis of face-gear drives
S. R. Denton and C. T. Morley	503	Limit analysis and strain-softening structures

S. C. Baik, H. N. Han, S. H. Lee, K. H. Oh and D. N. Lee	523	Plastic behaviour of perforated sheets with slot-type holes under biaxial stress state
P. F. Pai and M. J. Schulz	537	A refined nonlinear vibration absorber
C.-Y. Lee and C.-C. Cheng	561	Complex moduli of electrorheological material under oscillatory shear
P. D. Chinh	575	Safety and collapse of elastic–plastic beams against dynamic loads
H. Lippmann, N. Bontcheva and A. Baltov	593	Influence of the induced anisotropy in powder-based materials
J. Cao and X. Wang	617	An analytical model for plate wrinkling under tri-axial loading and its application
E. H. Mansfield	635	Collapse pressures for rhombic plates
Calendar	I	

NUMBER 4

G. Schaffner, X.-D. E. Guo, M. J. Silva and L. J. Gibson	645	Modelling fatigue damage accumulation in two-dimensional Voronoi honeycombs
B. Kim and R. M. Christensen	657	Basic two-dimensional core types for sandwich structures
S. Xu and K. J. Weinmann	677	Effect of deformation-dependent material parameters on forming limits of thin sheets
Z. Y. Jiang, X. L. Liu, X. H. Liu and G. D. Wang	693	Analysis of ribbed-strip rolling by rigid-viscoplastic FEM
L. R. Sanchez	705	A new cyclic anisotropic model for plane strain sheet metal forming
R. E. Miller	729	A continuum plasticity model for the constitutive and indentation behaviour of foamed metals
M. Życzkowski	755	Creep damage evolution equations expressed in terms of dissipated power
G. Cederbaum	771	Post-buckling behavior of poroelastic columns
H. Takuda, K. Mori, N. Takakura and K. Yamaguchi	785	Finite element analysis of limit strains in biaxial stretching of sheet metals allowing for ductile fracture
T. Ø. Pedersen	799	Numerical modelling of cyclic plasticity and fatigue damage in cold-forging tools
P. D. Chinh	819	From local failure toward global collapse of elastic–plastic structures in fluctuating fields
Calendar	I	

NUMBER 5

U. Güven and O. Altay	831	Elastic–plastic solid disk with nonuniform heat source subjected to external pressure
E. R. Lancaster, C. R. Calladine and S. C. Palmer	843	Paradoxical buckling behaviour of a thin cylindrical shell under axial compression
M. Kuroda and V. Tvergaard	867	Effect of strain path change on limits to ductility of anisotropic metal sheets
M. Li	889	An experimental investigation on cut surface and burr in trimming aluminum autobody sheet
M. Li	907	Micromechanisms of deformation and fracture in shearing aluminum alloy sheet
L. D. Wegner and L. J. Gibson	925	The mechanical behaviour of interpenetrating phase composites — I: modelling
L. D. Wegner and L. J. Gibson	943	The mechanical behaviour of interpenetrating phase composites — II: a case study of a three-dimensionally printed material
S. H. Chung, J. H. Lee, H. S. Chung and S. M. Hwang	965	Process optimal design in non-steady forming of porous metals by the finite element method
M. Papini and J. K. Spelt	991	Impact of rigid angular particles with fully-plastic targets Part I: Analysis
M. Papini and J. K. Spelt	1007	Impact of rigid angular particles with fully-plastic targets Part II: Parametric study of erosion phenomena
Calendar	1	

NUMBER 6

A. A. Garcia-Granada, D. J. Smith and M. J. Pavier	1027	A new procedure based on Sachs' boring for measuring non-axisymmetric residual stresses
J. Tirosh, A. Shirizly, D. Ben-David and S. Stanger	1049	Hydro-rim deep-drawing processes of hardening and rate-sensitive materials
C. R. Liu and Y. B. Guo	1069	Finite element analysis of the effect of sequential cuts and tool–chip friction on residual stresses in a machined layer
M. Robinson	1087	An evaluation of the errors in the yield surface for a rotationally symmetric thin shell due to neglecting transverse normal stresses and shell curvature

G. Gioux, T. M. McCormack and L. J. Gibson	1097	Failure of aluminum foams under multiaxial loads
K. Yu. Volokh and O. Vilnay	1119	Plane frames as semi-underconstrained systems
Q. S. Li, G. Q. Li and D. K. Liu	1135	Exact solutions for longitudinal vibration of rods coupled by translational springs
V. Yıldırım and E. Sancaktar	1153	Linear free vibration analysis of cross-ply laminated cylindrical helical springs
H.-S. Shen	1171	Postbuckling of shear deformable laminated plates under biaxial compression and lateral pressure and resting on elastic foundations
G. A. Mohr	1197	Polynomial solutions for thin plates
A. Moufki, D. Dudzinski, A. Molinari and M. Rausch	1205	Thermoviscoplastic modelling of oblique cutting: forces and chip flow predictions
Calendar	I	

NUMBER 7

Y. Dong, K. A. Tagavi, M. R. Lovell and Z. Deng	1233	Analysis of stress in cross wedge rolling with application to failure
A. Carpinteri and R. Brighenti	1255	A three-parameter model for fatigue behaviour of circumferential surface flaws in pipes
T. J. Kim and D. Y. Yang	1271	Improvement of formability for the incremental sheet metal forming process
K. H. Low	1287	A modified Dunkerley formula for eigenfrequencies of beams carrying concentrated masses
M. Ciavarella, P. Decuzzi and G. Monno	1307	Frictionally-excited thermoelastic contact of rough surfaces
J. L. Grenestedt and F. Bassinet	1327	Influence of cell wall thickness variations on elastic stiffness of closed-cell cellular solids
H. G. Kim and K. T. Kim	1339	Densification behavior of tungsten-fiber-reinforced copper powder compacts under hot isostatic pressing
S. Bhattacharyya and D. A. Blank	1357	Power optimized work limit for internally irreversible reciprocating engines
K. D. Murphy and Z. Lin	1369	The influence of spatially nonuniform temperature fields on the vibration and stability characteristics of EDM wires
M. M. Nazeer, M. Afzal Khan, A. Naeem and Anwar-ul Haq	1391	Analysis of conical tool perforation of ductile metal sheets

T. A. Netto and S. Kyriakides 1405 Dynamic performance of integral buckle arrestors for offshore pipelines. Part I: Experiments

T. A. Netto and S. Kyriakides 1425 Dynamic performance of integral buckle arrestors for offshore pipelines. Part II: Analysis

Calendar I

NUMBER 8

Guest Editorial 1453

Y. Tomita 1455 Constitutive modelling of deformation behavior of glassy polymers and applications

T. Tsuta, Y. Yin and Z. Xie 1471 Upper-bound rigid-plastic constitutive model for mixed-hardening materials with micro void evolution process

T. Czeppe and S. Wierzbinski 1499 Structure and mechanical properties of NiAl and Ni_3Al-based alloys

N. Ohno, X. Wu and T. Matsuda 1519 Homogenized properties of elastic–viscoplastic composites with periodic internal structures

T. X. Yu and F. L. Chen 1537 Failure of plastic structures under intense dynamic loading: modes, criteria and thresholds

C. S. Lee, S. B. Lee, J. S. Kim and Y. W. Chang 1555 Mechanical and microstructural analysis on the superplastic deformation behavior of Ti–6Al–4V Alloy

S.-H. Choi, J.-H. Cho, K. H. Oh, K. Chung and F. Barlat 1571 Texture evolution of FCC sheet metals during deep drawing process

M. Gotoh and M. Yamashita 1593 Chaotic behavior of an elastoplastic bar in tensile test over a wide range of strain rate: a numerical investigation

Y. H. Liu, Z. Z. Cen, H. F. Chen and B. Y. Xu 1607 Plastic collapse analysis of defective pipelines under multi-loading systems

H. Huh and T. H. Choi 1623 Modified membrane finite element formulation for sheet metal forming analysis of planar anisotropic materials

D. N. Lee 1645 Strain energy release maximization model for evolution of recrystallization textures

Calendar I

NUMBER 9

B. D. Reddy 1679 Obituary: John Martin

J. B. Kim, J. W. Yoon and D. Y. Yang 1683 Wrinkling initiation and growth in modified Yoshida buckling test: Finite element analysis and experimental comparison

R. Komanduri and Z. B. Hou 1715 Thermal modeling of the metal cutting process. Part I — Temperature rise distribution due to shear plane heat source

S. Sriram and R. H. Wagoner 1753 Adding bending stiffness to 3-D membrane FEM programs

G. Sun, D. Kennedy and F. W. Williams 1783 A post-buckling analysis for isotropic prismatic plate assemblies under axial compression

R.-F. Fung, J.-S. Huang, C.-G. Chien and Y.-C. Wang 1805 Design and application of a continuous repetitive controller for rotating mechanisms

K. Mori and H. Yoshimura 1821 Three-dimensional rigid–plastic finite element method using diagonal matrix for large-scale simulation of metal-forming processes

Y. Zhang, B. McClain and X. D. Fang 1835 Design of interference fits via finite element method

M. Thalmair and H. Lippmann 1851 Spatial free plastic forming of slender parts — fundamental relations and first example

Y.-M. Guo, Y. Yokouchi and K. Nakanishi 1867 Hot backward extrusion comparative analyses by a combined finite element method

Calendar I

Announcement III

NUMBER 10

F. D. Fischer, F. G. Rammerstorfer, N. Friedl and W. Wieser 1887 Buckling phenomena related to rolling and levelling of sheet metal

Y. T. Keum and K. B. Lee 1911 Sectional finite element analysis of forming processes for aluminum-alloy sheet metals

A. Służalec 1935 Simulation of stochastic metal-forming process for rigid-viscoplastic material

H.-S. Kim and T. Wierzbicki 1947 Numerical and analytical study on deep biaxial bending collapse of thin-walled beams

T. Duc Chinh 1971 Dynamics of shallow shells taking into account physical non-linearities

Z.-C. Lin and T.-G. Huang 1983 Different degree of reduction and sliding phenomenon study for three-dimensional hot rolling with sandwich flat strip

S. Sen, B. Aksakal and A. Ozel 2013 Transient and residual thermal stresses in quenched cylindrical bodies

K. C. Jane and C. C. Hong 2031 Interlaminar stresses of a rectangular laminated plate with simply supported edges subject to free vibration

H.-P. Gänser, E. A. Werner and F. D. Fischer 2041 Forming limit diagrams: a micromechanical approach

K. A. Seffen, Z. You and S. Pellegrino 2055 Folding and deployment of curved tape springs

W. Johnson 2075 "Antient" philosophy-science in Magna Graecia: Cassiodorus and Pythagoras and 20th c. literary travellers, Gissing and Douglas

Calendar I

NUMBER 11

Y. Tomita 2099 Editorial

P. B. Bëda 2101 Dynamical systems, rate and gradient effects in material instability

M. X. Shi, Y. Huang and K. C. Hwang 2115 Plastic flow localization in mechanism-based strain gradient plasticity

H. Petryk and K. Thermann 2133 Post-critical deformation pattern in plane strain plastic flow with yield-surface vertex effect

M. Brünig, S. Berger and H. Obrecht 2147 Numerical simulation of the localization behavior of hydrostatic-stress-sensitive metals

Y.-L. Shen, W. Li, D. L. Sulsky and H. L. Schreyer 2167 Localization of plastic deformation along grain boundaries in a hardening material

O. Watanabe and Y. Yamamoto 2191 Application of crystal plasticity to plastic behavior at notched plate and crack propagation

N. Boudeau and J.-C. Gelin 2209 Necking in sheet metal forming. Influence of macroscopic and microscopic properties of materials

K. Ito, K. Satoh, M. Goya and T. Yoshida 2233 Prediction of limit strain in sheet metal-forming processes by 3D analysis of localized necking

Y. Tomita, Y. Higa and T. Fujimoto 2249 Modeling and estimation of deformation behavior of particle-reinforced metal–matrix composite

Calendar I

NUMBER 12

X. W. Chen and T. X. Yu 2261 Elastic–plastic beam-on-foundation under quasi-static loading

L. Lc-Ngoc and H. McCallion	2283	A cellular finite element model for the cutting of soft-wood across the grain
M. Zeinoddini, J. E. Harding and G. A. R. Parke	2303	Contribution of ring resistance in the behaviour of steel tubes subjected to a lateral impact
W. Manners	2321	Pressure required to flatten an elastic random rough profile
G. A. Mohr	2337	Finite element solutions for optimal square plate
P. Hryniewicz, A. Z. Szeri and S. Jahanmir	2347	Coolant flow in surface grinding with non-porous wheels
X. Wang and J. Cao	2369	On the prediction of side-wall wrinkling in sheet metal forming processes
H. S. Yang, X.-P. S. Su and B. Bai	2395	Analysis of diametral strain in uniaxial tensile and compression testing of round specimens of anisotropic materials
Y.-M. Hwang, H.-H. Hsu and Y.-L. Hwang	2417	Analytical and experimental study on bonding behavior at the roll gap during complex rolling of sandwich sheets
O. Richmond and A. Azarkhin	2439	Minimum weight axisymmetric shell structures
O. Richmond and K. Chung	2455	Ideal stretch forming for minimum weight axisymmetric shell structures
W. Johnson	2469	Seeking classical manuscripts at Mount Athos and seiches at ancient Chalkis
Calendar	I	